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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/615,926	07/10/2003	Hideaki Yamasaki	010986.52578US	9914

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EXAMINER

LUND, JEFFRIE ROBERT

ART UNIT	PAPER NUMBER
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1763

DATE MAILED: 03/29/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/615,926

Applicant(s)

YAMASAKI ET AL.

Examiner

Jeffrie R. Lund

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 30-51 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 30-51 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 July 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Objections

1. Claim 30 is objected to because of the following informalities: in line 3 "bold" should read --hold--. Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 37, 39, 47 and 48 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 37 recites the limitation "said gas line" in line 2. There is insufficient antecedent basis for this limitation in the claim. It is not clear if the claim is referring to the source gas line, the vaporizing gas line, the diluting gas line, or some other gas line.

Claim 39 recites the limitation "said bypass line" in line 2. There is insufficient antecedent basis for this limitation in the claim.

Claim 47 and 48 both include the phrase "a location where said diluting gas is added to said source gas". It is not clear if this is referring to the "node" of claim 30 or some other point.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

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(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 30-34, 36, 40, 41, 47, and 51 are rejected under 35 U.S.C. 102(e) as being anticipated by Shinriki et al, US Patent Application Publication 2003/0236001 A1.

Shinriki et al teaches a CVD apparatus that includes: a reaction chamber 22 evacuated by an evacuating system 21 and supporting a substrate W on a support 22A; a source bottle 23A containing a liquid source material and forming a source gas therein as a result of vaporizing caused by a vaporizing gas (Ar) supplied via MFC 31 and vaporizing gas source line; a source gas supply line supplying said source gas to said reaction vessel 22; a diluting inert gas (Ar) supplied via MFC 32 and connected to the source gas supply line at a node; a concentration detector (gas analyzer) 33 provided in the source supply line; a manometer on the upstream side of the gas analyzer, and a controller 34 controlling the MFC 31, 32, which control the flow rate of the gases as a result of the measurement of the concentration detector 33. (Entire document, specifically, figures 2 and 3) The specific gas is an intended use of the apparatus, and the apparatus of Shinriki et al can inherently supply the desired gas.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

8. Claims 35, 38, and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shinriki et al, US Patent Application Publication 2003/0236001 A1, in view of Bondestam, US Patent 6,779,378 B2.

Shinriki et al was discussed above.

Shinriki et al differs from the present invention in that Shinriki et al does not teach that the diluting gas line is a bypass line bypassing the source bottle and including a variable valve, a bypass line connected to the source gas line and the evacuation system including the gas analyzer.

Bondestam teaches a gas supply system that includes a vaporizing line 130, a mass flow controller 132 controlling the vaporizing gas, and a bypass line 134 bypassing the source bottle and includes a variable control valve 135; and a bypass line 142 connected to the source gas line 140 and the evacuation system 320 via line 210. (Figure 1)

The motivation for adding the bypass line of Bondestam to the apparatus of

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Shinriki et al is to enable the apparatus of Shinriki et al to supply the vaporizing gas and the diluting gas from a common source, and to simplify the gas supply system.

The motivation for adding the bypass line connected to the source gas supply line and the evacuation system of Bondestam to the apparatus of Shinriki et al is to allow the source gas to be dumped to maintain a constant flow of the source gas when the apparatus is not in use, and to enable the supply lines to be evacuated.

The motivation for moving the gas analyzer of Shinriki et al from the source gas supply line to the bypass line is to provide an alternate and equivalent location for the gas analyzer. Furthermore, it has been held that the rearrangement of parts is obvious. (See In re Japikse 86 USPQ 70)

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to add the bypass lines of Bondestam to the apparatus of Shinriki et al, and to move the gas analyzer of Shinriki et al to the bypass line connected to the exhaust system.

9. Claim 37 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shinriki et al, US Patent Application Publication 2003/0236001 A1, in view of Ueda et al, US Patent 5,365,772.

Shinriki et al was discussed above.

Shinriki et al differs from the present invention in that Shinriki et al does not teach that the gas analyzer is located parallel to the source gas supply line and isolated by two valves.

Ueda et al teaches a gas analyzer 39 located parallel to a gas line 32 (from

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which the sample is taken) and isolated by valves 37 and 41. (Figure 3)

The motivation for moving the gas analyzer of Shinriki et al from the source gas supply line to a line parallel to the source gas supply line is to provide an alternate and equivalent location for the gas analyzer as taught by Ueda et al. Furthermore, it has been held that the rearrangement of parts is obvious. (See In re Japikse 86 USPQ 70)

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to move the gas analyzer of Shinriki et al to a position parallel to the source gas supply line and isolate the gas analyzer with valves as taught by Ueda et al.

10. Claims 42 and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shinriki et al, US Patent Application Publication 2003/0236001 A1, in view of Satake et al, JP 2001-234348.

Shinriki et al was discussed above.

Shinriki et al differs from the present invention in that Shinriki et al does not teach that the concentration detector is a FTIR.

Satake et al teaches a coating chamber that includes a FTIR concentration detector 20. (Abstract, figure 7)

The motivation for using a FTIR concentration detector in the apparatus of Shinriki et al is to provide a specific concentration detector as required but only generically disclosed by Satake et al.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the FTIR concentration detector of Satake et al in the

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apparatus of Shinriki et al.

11. Claims 49 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shinriki et al, US Patent Application Publication 2003/0236001 A1, in view of Holst et al, US Patent Application Publication 2003/0056723 A1.

Shinriki et al was discussed above.

Shinriki et al differs from the present invention in that Shinriki et al does not teach that the concentration detector is a non-dispersion infrared spectrometer (NDIR).

Holst et al teaches using a NDIR concentration detector 20 to detect a concentration of material in a gas flow. (Paragraph 55)

The motivation for using a NDIR concentration detector in the apparatus of Shinriki et al is to provide a specific concentration detector as required but only generically disclosed by Holst et al.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the NDIR concentration detector of Holst et al in the apparatus of Shinriki et al.

12. Claim 43-46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Shinriki et al, US Patent Application Publication 2003/0236001 A1, in view of Tokai et al, US Patent Application Publication 2002/0014700 A1.

Shinriki et al was discussed above.

Shinriki et al differs from the present invention in that Shinriki et al does not teach that the controller receives input from a manometer (pressure sensor) and corrects the measured concentration based on the pressure.

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Tokai et al teaches a coating chamber that includes a controller 38 that controls the gas sources 14 based on input from concentration detectors 36, 37 and a pressure sensor 60.

The motivation for controlling the concentration of the source gas in the apparatus of Shinriki et al using signals from both the concentration detector and pressure sensor as taught by Tokai et al is to control the source flows based on their concentrations, adjusted for the pressure.

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to control the gas sources of Shinriki et al using information supplied by the concentration detector and pressure sensor as taught by Tokai et al.

13. Claim 48 is rejected under 35 U.S.C. 103(a) as being unpatentable over Shinriki et al, US Patent Application Publication 2003/0236001 A1.

Shinriki et al was discussed above.

Shinriki et al differs from the present invention in that Shinriki et al does not teach that the gas analyzer is located upstream of the node.

The motivation for moving the gas analyzer of Shinriki et al to a position upstream of the node is to monitor the source gas without the inert gas, or to provide an alternate and equivalent location for the gas analyzer. Furthermore, it has been held that the rearrangement of parts is obvious. (See In re Japikse 86 USPQ 70)

Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to move the gas analyzer of Shinriki et al.

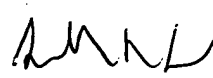
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Conclusion

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrie R. Lund whose telephone number is (571) 272-1437. The examiner can normally be reached on Monday-Thursday (6:30 am-6:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on (571) 272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Jeffrie R. Lund
Primary Examiner
Art Unit 1763

JRL
3/20/06